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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/512,046	10/21/2004	Shojiro Tanase	HEIW:040	8407

27890 7590 07/01/2005
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WASHINGTON, DC 20036

EXAMINER

CHOI, LING SIU

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/512,046

Applicant(s)

TANASE ET AL.

Examiner

Ling-Siu Choi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/21/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This Application is a 371 of PCT/JP03/05615 filed May 2, 2003. Claims 1-12 are now pending, wherein claims 1-10 are drawn to a solid catalyst component; claim 11 is drawn to a catalyst; and claim 12 is drawn to a method to produce an olefin polymer.
2. JP 58-811 cited in Form PTO 1449 has not be found. Thus, it will not be considered in this Office Action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanase et al. (EP 1 108 730 A1) in view of Morini et al. (WO 98/56830).

A solid catalyst component for olefin polymerization obtained by reacting the following compounds a-b-d or a-b-c-d	
a	a halogen-containing titanium compound
b	an alkoxyated magnesium compound obtained by reacting metal magnesium, an alcohol, and a halogen and/or halogen-containing compound containing at least 0.0001 gm atom of a halogen atom per mole of the metal magnesium
c	a halogen-containing silicon compound
d	electron-donating compound(s) represented by formula I and/or formula II,
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> $\begin{array}{c} R^2 \\ \\ R^1 - C - O - \left[\begin{array}{c} R^4 \\ \\ R^5 \end{array} \right]_n - O - \begin{array}{c} R^6 \\ \\ R^7 \end{array} - R^8 \\ \\ R^3 \end{array} \quad (I)$ </div> <div style="text-align: center;"> $\begin{array}{c} R^9 \quad R^{10} \\ \diagdown \quad / \\ R^{11} - O - C \quad C - O - R^{12} \\ \quad \\ O \quad O \end{array} \quad (II)$ </div> </div>	

(summary of claim 1)

Tanase et al. disclose a catalyst for olefin polymerization, comprising (A) a solids catalyst component prepared by contacting a magnesium compound, a titanium compound of $Ti(OR)_nX_{4-n}$ with $n = 0-4$, and an electron donor, wherein the magnesium compound is obtained by reacting a metal magnesium, an alcohol, and at least 0.0001 gm atoms of halogen per gm atom of magnesium, (B) an organometallic compound, and (C) an electron donor (abstract; [0004]).

The difference between the present claims and the disclosure of Tanasde et al. is the requirement of the specific poly(di)ether and/or ester of malonic acid to be used in the present invention.

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It is noted that Tanase et al. do recognize polyether (diether) or ester of malonic acid among a list of the internal electron donors to be used as an internal electron donor ([0027]; [0028]). Morini et al. disclose that the use of the specific ester of malonic acid as an internal electron donor leads to an excellent balance between polymerization yield and isotactic index for the resulting polymer (page 3, lines 7-9). In light of such benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the specific ester of malonic acid in the disclosure of Tanase and thereby obtain the present invention.

5. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koyama et al. (US 5,177,043) in view of Morini et al. (WO 98/56830).

Koyama et al. disclose a catalyst for olefin polymerization, comprising (A) a solid component comprising (I) a magnesium compound obtained by contacting metallic magnesium, a halogenated hydrocarbon, and an alkoxy group-containing compound, (II) a titanium compound such as titanium tetrachloride, and (III) an internal electron donor, (B) an organoaluminum cocatalyst, and (C) a silane compound (abstract; col. 3, lines 9-12; col. 4, lines 6-18; Example 1; claim 1).

The difference between the present claims and the disclosure of Koyama et al. is the requirement of the specific poly(di)ether and/or ester of malonic acid to be used in the present invention.

It is noted that Koyama et al. do recognize diethylmalonate or diisobutyl malonate among a list of the internal electron donors to be used as an internal electron

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donor (col. 4, lines 56-57). Morini et al. disclose that the use of the specific ester of malonic acid as an internal electron donor leads to an excellent balance between polymerization yield and isotactic index for the resulting polymer (page 3, lines 7-9). In light of such benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the specific ester of malonic acid in the disclosure of Koyama et al. and thereby obtain the present invention.

6. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinozaki et al. (US 6,537,942 B2) in view of Morini et al. (WO 98/56830).

Shinozaki et al. disclose a catalyst for olefin polymerization, comprising (I) a contact product obtained by contacting (A) a solid titanium catalyst component, (B) an organometallic compound, and (C) a specific polyether compound, (II) a specific organosilicon compound, and (III) an organometallic compound, wherein the component A comprises titanium tetrahalide and alkoxymagnesium chloride (abstract; col. 9, lines 1-3; col. 10, lines 7-9).

The difference between the present claims and the disclosure of Shinozaki et al. is the requirement of the specific poly(di)ether and/or ester of malonic acid to be used in the present invention.

It is noted that Shinozaki et al. do recognize diisobutyl methylmalonate among a list of the internal electron donors to be used as an internal electron donor (col. 10, line 52). Morini et al. disclose that the use of the specific ester of malonic acid as an internal electron donor leads to an excellent balance between polymerization yield and

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isotactic index for the resulting polymer (page 3, lines 7-9). In light of such benefit, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the specific ester of malonic acid in the disclosure of Shinozaki et al. and thereby obtain the present invention.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



**LING-SUI CHOI
PRIMARY EXAMINER**

June 15, 2005